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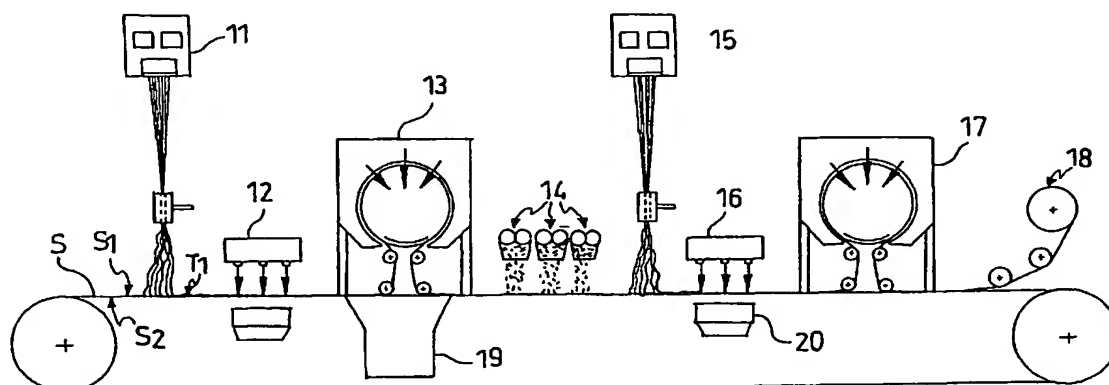
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(54) Title: NON-WOVEN BASED ON EXPLODED OR SPLITTABLE MULTICOMPONENT FIBERS



(57) Abstract: A hydro-entangled non-woven based on multi-component fibers, either exploded or splittable by hydro-entangling, and a process for the obtaining of the same is described: the thus obtained non-woven has improved softness, resistance and appearance and increases the productive potential of a future industrial line.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 D04H13/00 D04H3/10 D04H3/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/099176 A (FLEISSNER GEROLD ; GERKING LUEDER (DE); FLEISSNER MASCHF GMBH CO (D) 12 December 2002 (2002-12-12) claims 1-5	8,9, 11-14, 27-30,33
X	EP 1 156 147 A (KANG NA HSIUNG ENTPR CO LTD) 21 November 2001 (2001-11-21) claims 1,5,6,10,11,17,18	1-7,27, 28,33,34
A	US 2002/034914 A1 (CARLSON CHERYL LYNN ET AL) 21 March 2002 (2002-03-21) paragraph '0035!; figures 2A-2C	1-34
A	EP 0 933 459 A (UNITIKA LTD) 4 August 1999 (1999-08-04) claims 1-4	1-34
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International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>W0 98/23804 A (KIMBERLY CLARK CO) 4 June 1998 (1998-06-04) page 3, line 1 - line 32; figure 7 <u> </u></p>	1-34

INTERNATIONAL SEARCH REPORT

Information on patent family members

Int'l Application No
PCT/IT2004/000220

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 02099176	A	12-12-2002	DE 10127471 A1 WO 02099176 A1 EP 1402099 A1 JP 2004527673 T	12-12-2002 12-12-2002 31-03-2004 09-09-2004
EP 1156147	A	21-11-2001	EP 1156147 A1	21-11-2001
US 2002034914	A1	21-03-2002	AU 1877702 A EP 1299587 A1 WO 0204729 A1	21-01-2002 09-04-2003 17-01-2002
EP 0933459	A	04-08-1999	JP 11217757 A CA 2260283 A1 DE 69904763 D1 DE 69904763 T2 EP 0933459 A1 US 2002006502 A1 US 2003139110 A1	10-08-1999 30-07-1999 13-02-2003 21-08-2003 04-08-1999 17-01-2002 24-07-2003
WO 9823804	A	04-06-1998	US 6200669 B1 AU 729553 B2 AU 5454198 A BR 9713419 A CA 2270529 A1 CN 1245542 A ,B DE 69724814 D1 DE 69724814 T2 EP 0941379 A1 WO 9823804 A1 US 2001037850 A1	13-03-2001 01-02-2001 22-06-1998 24-10-2000 04-06-1998 23-02-2000 16-10-2003 01-07-2004 15-09-1999 04-06-1998 08-11-2001